

WHAT IS CLAIMED IS:

1. An electronic circuit device comprising:

5 a first pair transmission line comprising a power-supply line, a first ground line and a first insulating layer disposed between the power-supply line and the first ground line, a face of the power-supply line facing a face of the first ground line;

a driver transistor; and

10 a second pair transmission line comprising a signal line, a second ground line and a second insulating layer disposed between the signal line and the second ground line, a face of the signal line facing a face of the second ground line, and an output of the driver transistor being supplied to the signal line,

wherein the power-supply line is directly connected to a drain layer of the driver transistor and the first ground line is connected to a substrate of the driver transistor.

15 2. The electronic circuit device of claim 1, wherein a wiring length of the second pair transmission line is longer than a quarter of a wave length of a harmonic of a tenfold frequency of an operational pulse frequency of the driver transistor.

20 3. The electronic circuit device of claim 1 or 2, wherein the signal line is directly connected to a source layer of the driver transistor and the second ground line is directly connected to the substrate of the driver transistor.

25 4. The electronic circuit device of claim 3, wherein a characteristic impedance of the first pair transmission line is equal to or greater than a characteristic impedance of the second pair transmission line.

5. The electronic circuit device of claim 1, wherein the first ground line is connected to the second ground line through a low resistance layer formed in the substrate of the driver transistor.

30 6. An electronic circuit device comprising:

a main pair transmission line comprising a main power-supply line and a main ground line;

a plurality of branch pair transmission lines branching off from the main pair transmission line, each of the branch pair lines comprising a branch power-supply line and a branch ground line;

a driver transistor connected to each of the branch pair transmission lines;  
another pair transmission line comprising a signal line and another ground line, an output of the driver transistor being supplied to the signal line; and  
a receiver circuit receiving a signal transmitted from the another pair transmission line.

7. The electronic circuit device of claim 6, wherein the device is configured so that following formula applies:

$$Z_{ops} \leq Z_{opt} / n \leq 1.2Z_{ops}$$

where n denotes a number of the branch pair transmission lines,  $Z_{ops}$  denotes a characteristic impedance of the main pair transmission line and  $Z_{opt}$  denotes a characteristic impedance of the branch pair transmission lines.

8. The electronic circuit device of claim 6, further comprising a wiring web structure connected between a group of the branch pair transmission lines and the main pair transmission line.

9. The electronic circuit device of claim 8, wherein each path between the branch pair transmission line and the main pair transmission line in the wiring web structure has a same length.

10. The electronic circuit device of claim 6, 7, 8 or 9, further comprising:  
a plurality of bypass capacitors connected to a terminal portion of the main pair transmission line;  
a supply-side pair transmission line connected to the terminal portion and comprising a

supply-side power-supply line and a supply-side ground line;

a capacitor connected between the supply-side power-supply line and the supply-side ground line; and

a power-supply circuit connected to the supply-side pair transmission line.

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11. The electronic circuit device of claim 6, 7, 8 or 9, further comprising an attenuation circuit which comprises a pair of capacitors connected between the main power-supply line and the main ground line and a resistor connecting the pair of capacitors, and is disposed adjacent a branching point of the main pair transmission line.

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12. The electronic circuit device of claim 11, wherein the pair of capacitors has a total capacitance equal to or larger than 50 times as large a capacitance as the main pair transmission line of a same length as a length of the attenuation circuit along a longitudinal direction of the main pair transmission line.

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13. The electronic circuit device of claim 6, 7, 8 or 9, further comprising an attenuation circuit which comprises a pair of electrodes for capacitor formation disposed between the main power-supply line and the main ground line and a resistor connecting the pair of electrodes, and is disposed adjacent a branching point of the main pair transmission line.

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14. The electronic circuit device of claim 13, wherein a pair of capacitors each formed between the main pair transmission line and a corresponding electrode has a total capacitance equal to or larger than 50 times as large a capacitance as the main pair transmission line of a same length as a length of the attenuation circuit along a longitudinal direction of the main pair transmission line.

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15. The electronic circuit device of claim 6, 7, 8 or 9, further comprising:  
a directional coupler comprising paired lines and disposed adjacent a branching point of the main pair transmission line; and

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a terminating resistance connecting the paired lines.

16. The electronic circuit device of claim 15, wherein a spacing between the main pair transmission line and the directional coupler is equal to or smaller than a thickness of a conductor forming the directional coupler.